



***MARTIN COUNTY MONITORING AREA  
HUTCHINSON ISLAND, FLORIDA  
RESULTS OF 2005 SEA TURTLE MONITORING***



***Prepared for Martin County by  
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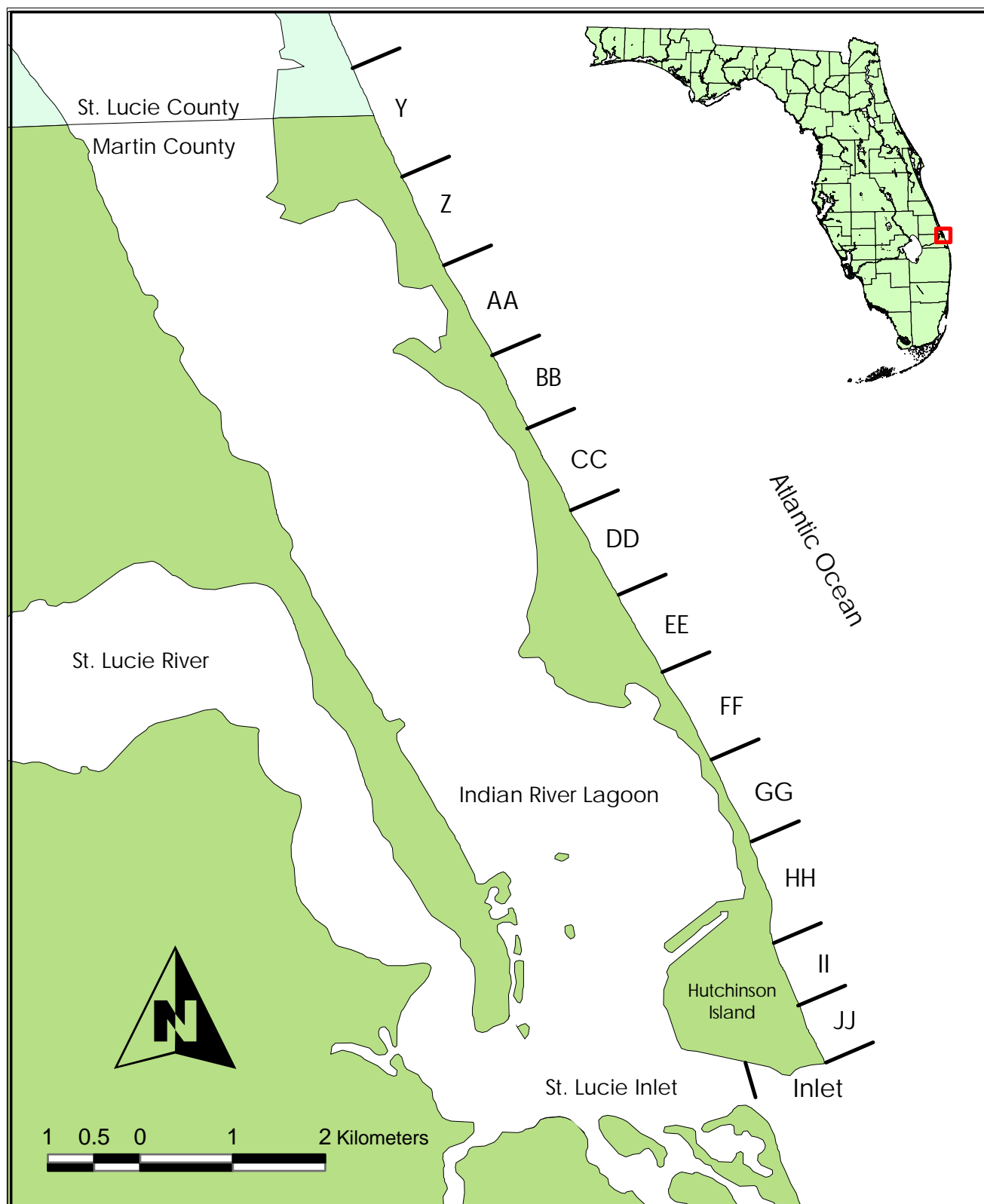
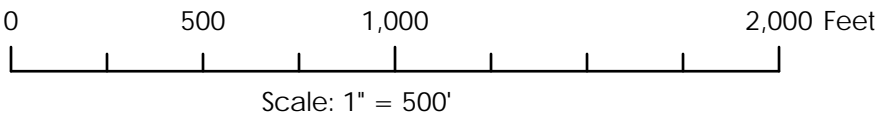


Figure 1. Location of Index Nesting Beach Survey Zones Y - Inlet used to monitor sea turtle nesting activity along the Martin County portion of Hutchinson Island, Florida.



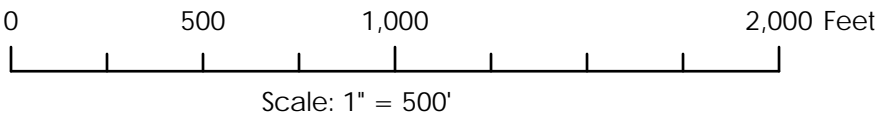
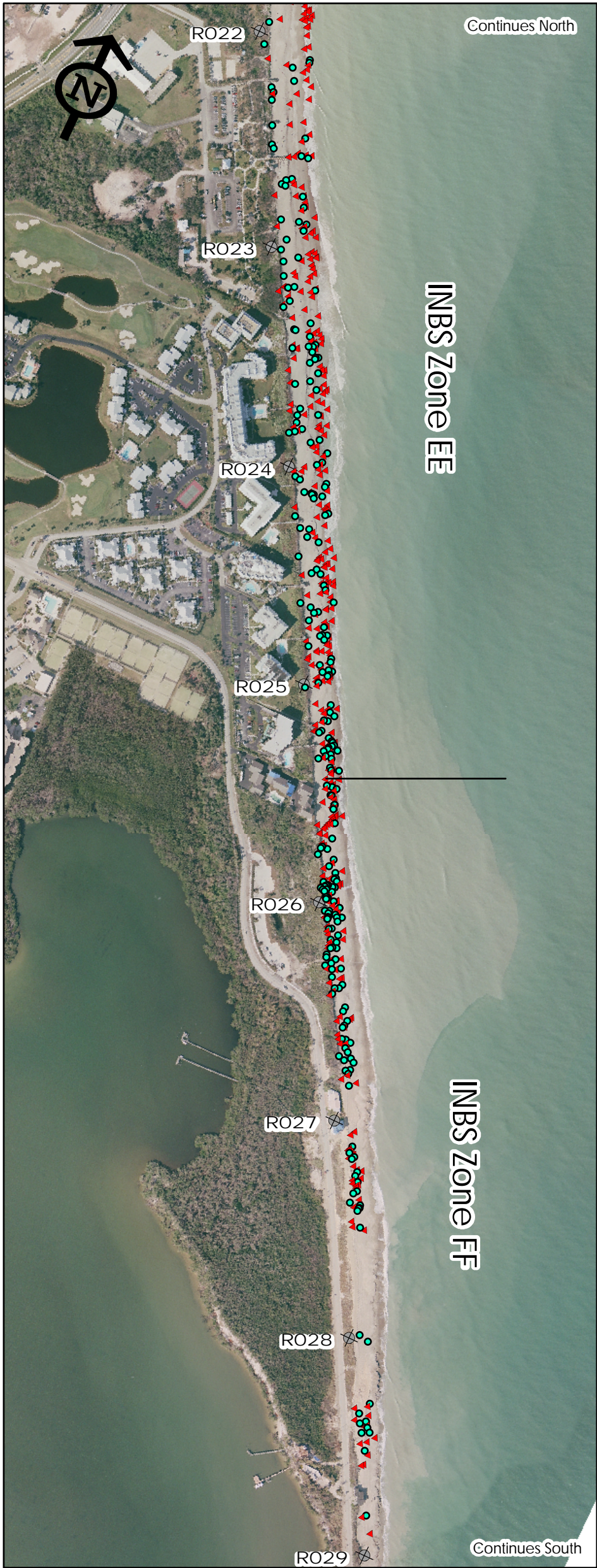


- Legend
- Loggerhead Crawls
  - Nest
  - ▲ False Crawl

Note:

Reliable GPS Data Not Available for 38 loggerhead nests and 102 false crawls.



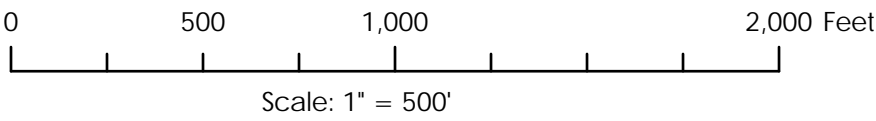
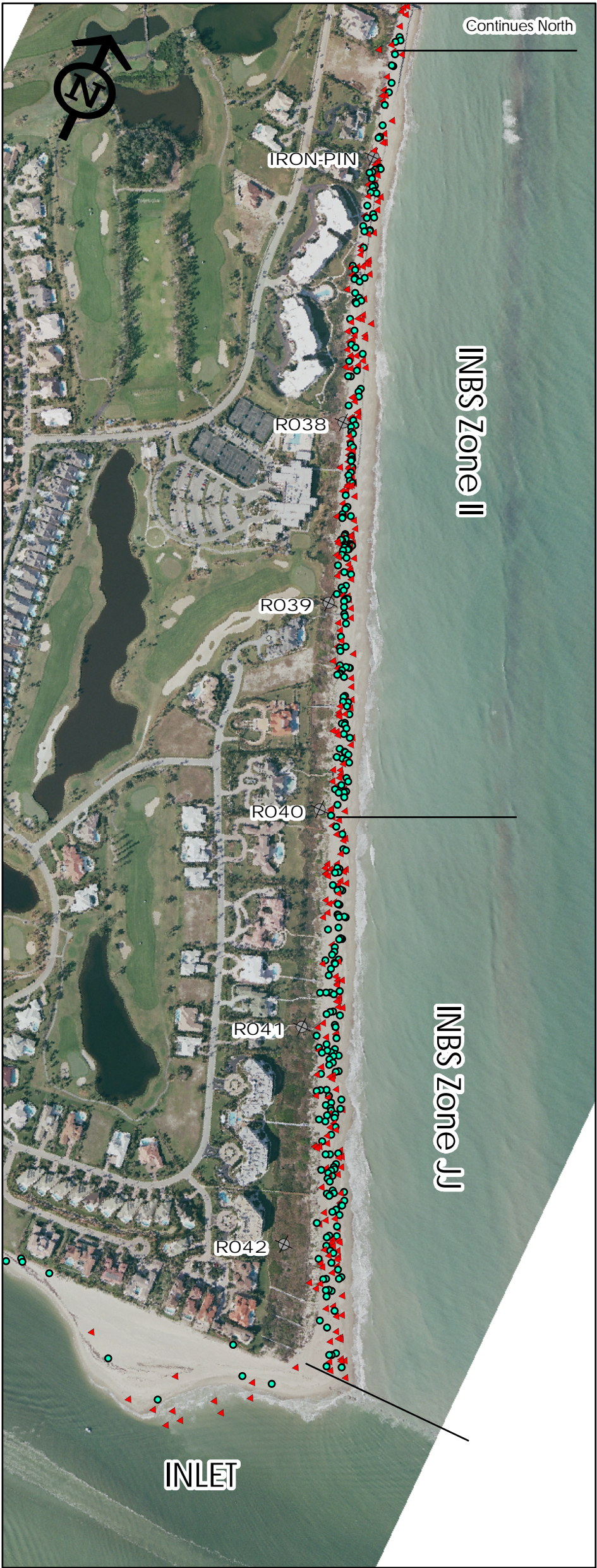


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- Legend
- Loggerhead Crawls
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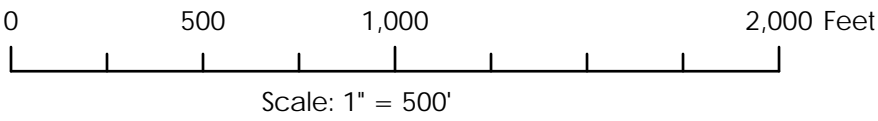


Note:

Reliable GPS Data Not Available for 38 loggerhead nests and 102 false crawls.

- Legend
- Loggerhead Crawls
  - Nest
  - ▲ False Crawl





Note:

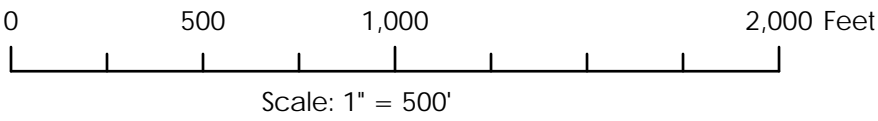
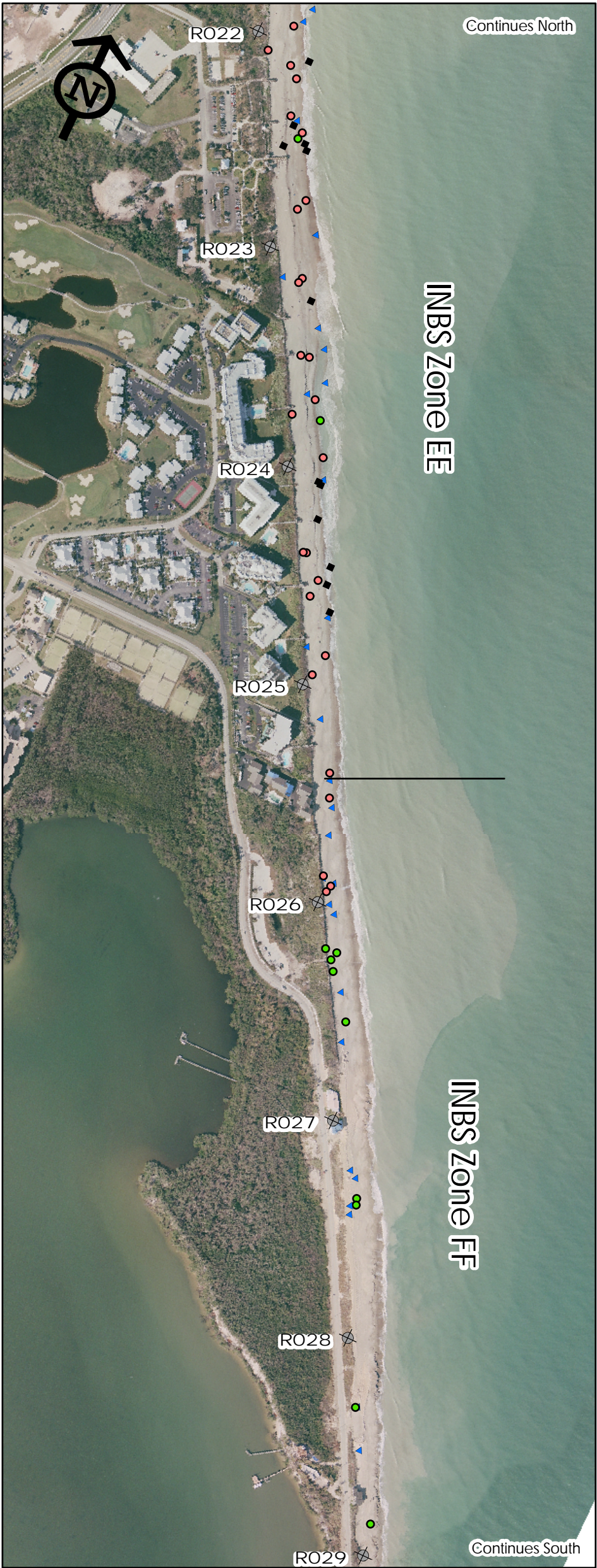
Reliable GPS Data Not Available for 8 green turtle false crawls, 2 leatherback nests, and 2 leatherback false crawls.

Legend

- |                     |                    |
|---------------------|--------------------|
| Green Turtle Crawls | Leatherback Crawls |
| ● Nest              | ● Nest             |
| ▲ False Crawl       | ■ False Crawl      |







Note:

Reliable GPS Data Not Available for 8 green turtle false crawls, 2 leatherback nests, and 2 leatherback false crawls.

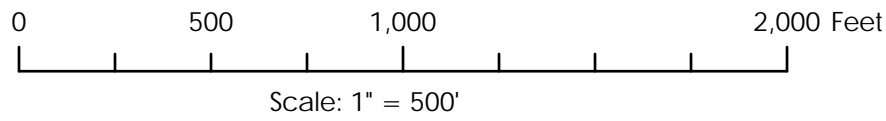
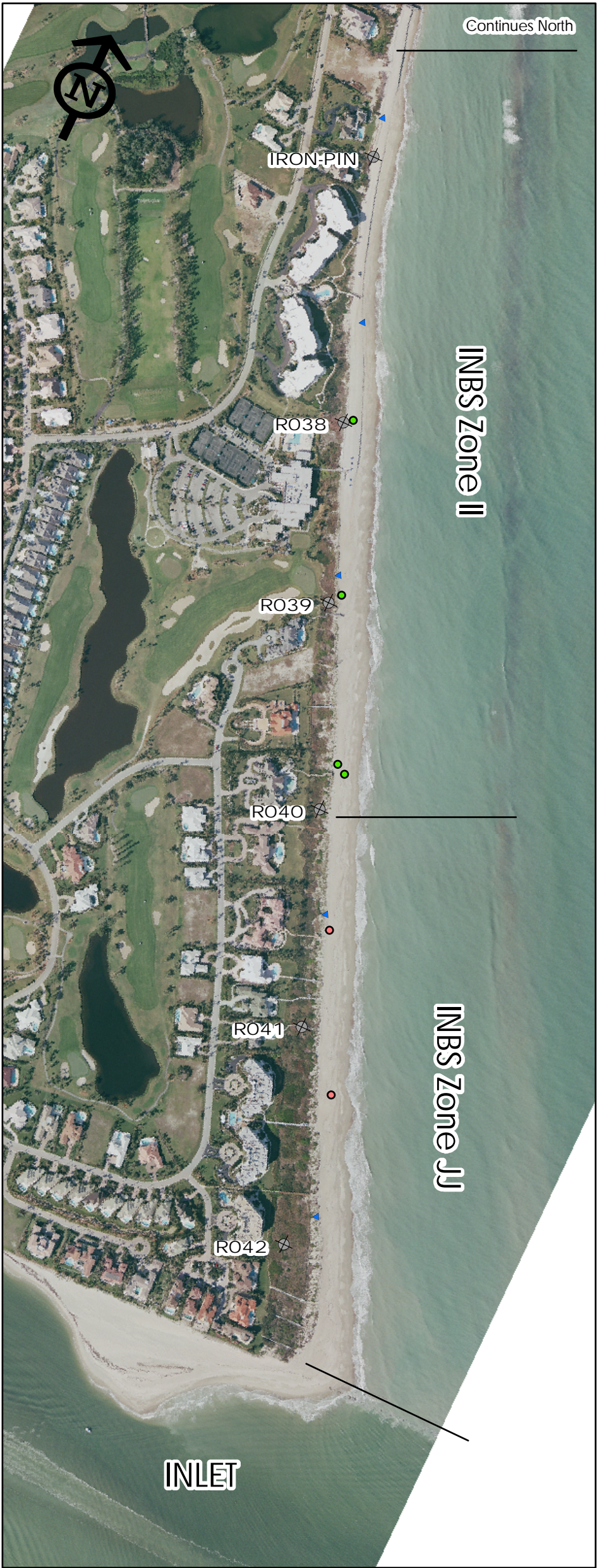
Legend

- |                     |                    |
|---------------------|--------------------|
| Green Turtle Crawls | Leatherback Crawls |
| ● Nest              | ● Nest             |
| ▲ False Crawl       | ■ False Crawl      |

Figure 3 Location of Green Turtle and Leatherback Crawls within the Martin County monitoring area, 2005.







Note:

Reliable GPS Data Not Available for 8 green turtle false crawls, 2 leatherback nests, and 2 leatherback false crawls.

Legend

- |                     |                    |
|---------------------|--------------------|
| Green Turtle Crawls | Leatherback Crawls |
| ● Nest              | ● Nest             |
| ▲ False Crawl       | ■ False Crawl      |

Figure  
**3**  
Sheet 3 of 3

Location of Green Turtle and Leatherback Crawls within the Martin County monitoring area, 2005.

Hutchinson Island, Martin County, FL

Photo: Martin County Information Technology Services, January 2005





**Table 1.** Sea turtle crawl activity summarized by month and species, Zones YM – INLET, Hutchinson Island, Florida, 2005. Includes only false crawls and nests above the previous high tide line.

Survey Month <sup>1</sup>	Loggerhead		Green Turtle		Leatherback	
	Nests	False Crawls	Nests	False Crawls	Nests	False Crawls <sup>2</sup>
March	0	0	0	0	5	4
April	0	3	0	0	22	20
May	284	487	0	0	36	25
June	665	996	9	13	21	5
July	547	1,103	29	119	2	3
August	141	293	11	64	0	0
September	1	4	4	6	0	0
October	0	0	1	0	0	0
<b>Total</b>	<b>1,638</b>	<b>2,886</b>	<b>54</b>	<b>202</b>	<b>86</b>	<b>57</b>

<sup>1</sup> Daily nesting surveys were conducted from 1 March through 16 September 2005 along the northern 10 km of the 12 km long survey area. The southern 2 km were monitored daily from 15 April through 16 September with periodic monitoring prior to 15 April.

<sup>2</sup> Includes two false nests (one in March and one in April). A false nest is defined as a non-nesting emergence in which the turtle went through all phases of nesting with the exception of laying eggs. False nests have all the characteristics that are used to identify nests during morning surveys. In both of the cases reported here, the turtles were observed throughout the nesting process.

**Table 2.** Loggerhead turtle (*Caretta caretta*) crawl activity and nesting success, summarized by Index Nesting Beach Survey (INBS) Zone, Hutchinson Island, Florida, 2005. Includes only false crawls and nests above the previous high tide line.

INBS Zone	Total Crawls	Total Nests	Total False Crawls	Nesting Success <sup>1</sup>
<b>YM<sup>2</sup></b>	343	138	205	40.2%
<b>Z</b>	457	108	349	23.6%
<b>AA</b>	500	164	336	32.8%
<b>BB</b>	531	183	348	34.5%
<b>CC</b>	449	139	310	31.0%
<b>DD</b>	420	119	301	28.3%
<b>EE</b>	439	145	294	33.0%
<b>FF</b>	260	115	145	44.2%
<b>GG</b>	286	140	146	49.0%
<b>HH</b>	232	96	136	41.4%
<b>II</b>	329	148	181	45.0%
<b>JJ</b>	253	133	120	52.6%
<b>INLET</b>	25	10	15	40.0%
<b>Total</b>	<b>4,524</b>	<b>1,638</b>	<b>2,886</b>	<b>36.2%</b>

<sup>1</sup> Nesting Success = (number of nests / number of crawls) x 100 percent

<sup>2</sup> Zone YM = the Martin County portion of INBS Zone Y.

**Table 3.** Green turtle (*Chelonia mydas*) crawl activity and nesting success, summarized by Index Nesting Beach Survey (INBS) Zone, Hutchinson Island, Florida, 2005. Includes only false crawls and nests above the previous high tide line.

INBS Zone	Total Crawls	Total Nests	Total False Crawls	Nesting Success <sup>1</sup>
YM <sup>2</sup>	19	6	13	31.6%
Z	24	5	19	20.8%
AA	27	2	25	7.41%
BB	30	5	25	16.7%
CC	25	2	23	8.00%
DD	31	3	28	9.68%
EE	19	2	17	10.5%
FF	24	8	16	33.3%
GG	36	15	21	41.7%
HH	12	2	10	16.7%
II	7	4	3	57.1%
JJ	2	0	2	0.00%
INLET	0	0	0	-
<b>Total</b>	<b>256</b>	<b>54</b>	<b>202</b>	<b>21.1%</b>

<sup>1</sup> Nesting Success = (number of nests /number of crawls) x 100 percent

<sup>2</sup> Zone YM = the Martin County portion of INBS Zone Y.

**Table 4.** Leatherback turtle (*Dermochelys coriacea*) crawl activity and nesting success, summarized by Index Nesting Beach Survey (INBS) Zone, Hutchinson Island, Florida, 2005. Includes only false crawls and nests above the previous high tide line.

INBS Zone	Total Crawls	Total Nests	Total False Crawls <sup>1</sup>	Nesting Success <sup>2</sup>
YM <sup>3</sup>	22	13	9	59.1%
Z	18	12	6	66.7%
AA	14	9	5	64.3%
BB	16	7	9	43.8%
CC	13	5	8	38.5%
DD	12	7	5	58.3%
EE	37	23	14	62.2%
FF	4	4	0	100.0%
GG	0	0	0	-
HH	5	4	1	80.0%
II	0	0	0	-
JJ	2	2	0	100.0%
INLET	0	0	0	-
<b>Total</b>	<b>143</b>	<b>86</b>	<b>57</b>	<b>60.1%</b>

<sup>1</sup> Includes two false nests (one in YM and one in AA).

<sup>2</sup> Nesting Success = (number of nests /number of crawls) x 100 percent

<sup>3</sup> Zone YM = the Martin County portion of INBS Zone Y.



**Table 5.** Number of marked sea turtle nests, summarized by species and Index Nesting Beach Survey (INBS) Zone, Hutchinson Island, Florida, 2005. *Does not include relocated nests.*

INBS Zone	Loggerhead	Green Turtle	Leatherback	Total
YM <sup>1</sup>	26	6	9	41
Z	19	4	9	32
AA	25	1	8	34
BB	34	2	3	39
CC	26	2	3	31
DD	20	0	4	24
EE	44	1	15	60
FF	28	2	4	34
GG	62	10	0	72
HH	49	1	3	53
II	95	2	0	97
JJ	65	0	2	67
INLET	0	0	0	0
<b>Total</b>	<b>493</b>	<b>31</b>	<b>60</b>	<b>584</b>

<sup>1</sup> Zone YM = the Martin County portion of INBS Zone Y.

**Table 6.** Fates of marked sea turtle nests, Index Nesting Beach Survey Zones YM – Inlet, Hutchinson Island, Florida, 2005. *Does not include relocated nests.*

Fate		Loggerhead	Green Turtle	Leatherback	Total
Evaluated	Hatched with Signs of Emergence	322	15	28	366
	Hatched with No Signs of Emergence	32	2	0	34
	Did Not Hatch	22	1	0	23
	<b>Total Evaluated</b>	<b>376</b>	<b>18</b>	<b>28</b>	<b>422</b>
Not Evaluated	Washed Out	95	8	12	115
	Clutch Not Located	6	5	15	26
	Hatched, Clutch Not Located	0	0	2	2
	Disturbed by Another Turtle	4	0	0	4
	Stakes Vandalized	2	0	1	3
	Buried	4	0	0	4
	Depredated	0	0	0	0
	Hatched, Not Analyzed	6 <sup>1</sup>	0	2 <sup>2</sup>	8
	<b>Total Not Evaluated</b>	<b>117</b>	<b>13</b>	<b>32</b>	<b>162</b>
<b>Total Marked</b>		<b>493</b>	<b>31</b>	<b>60</b>	<b>584</b>

<sup>1</sup> The contents of three nests were too decomposed to evaluate and the contents of the other three were washed out after hatchling emergence but before excavation/evaluation.

<sup>2</sup> The contents of these nests were too decomposed to evaluate.

**Table 7.** Number and percentage of marked sea turtle nests washed out, summarized by species and Index Nesting Beach Survey (INBS) Zone, Hutchinson Island, Florida, 2005. A dash indicates that there were no marked nests in the specified INBS Zone. *Does not include relocated nests.*

INBS Zone	Loggerhead	Green Turtle	Leatherback	Total
<b>YM<sup>1</sup></b>	1 (3.85%)	1 (16.7%)	4 (44.4%)	<b>6 (14.6%)</b>
<b>Z</b>	7 (36.8%)	1 (25.0%)	1 (11.1%)	<b>9 (28.1%)</b>
<b>AA</b>	9 (36.0%)	0 (0.00%)	3 (37.5%)	<b>12 (35.3%)</b>
<b>BB</b>	5 (14.7%)	0 (0.00%)	0 (0.00%)	<b>5 (13.9%)</b>
<b>CC</b>	7 (26.9%)	0 (0.00%)	0 (0.00%)	<b>7 (25.0%)</b>
<b>DD</b>	7 (35.0%)	-	2 (50.0%)	<b>9 (37.5%)</b>
<b>EE</b>	5 (11.4%)	1 (100%)	2 (13.3%)	<b>8 (13.3%)</b>
<b>FF</b>	3 (10.7%)	0 (0.00%)	0 (0.00%)	<b>3 (10.0%)</b>
<b>GG</b>	12 (19.4%)	3 (30.0%)	-	<b>15 (20.8%)</b>
<b>HH</b>	6 (12.2%)	0 (0.00%)	0 (0.00%)	<b>6 (2.0%)</b>
<b>II</b>	17 (17.9%)	2 (100%)	-	<b>19 (19.6%)</b>
<b>JJ</b>	16 (24.6%)	-	0 (0.00%)	<b>16 (24.6%)</b>
<b>INLET</b>	-	-	-	-
<b>Total</b>	<b>95 (19.3%)</b>	<b>8 (25.8%)</b>	<b>12 (20.0%)</b>	<b>115 (19.7%)</b>

<sup>1</sup> Zone YM = the Martin County portion of INBS Zone Y.

**Table 8.** Mean clutch size, clutch depth and incubation period of marked loggerhead turtle (*Caretta caretta*) nests, summarized by Index Nesting Beach Survey (INBS) Zone, Hutchinson Island, Florida, 2005. A dash indicates that there were no marked nests in the specified INBS Zone. *Does not include relocated nests*

INBS Zone	Clutch Size (eggs)	Clutch Depth (cm)	Incubation Period (days)
<b>YM<sup>1</sup></b>	112.0 (N=24)	56.7 (N=24)	51.1 (N=21)
<b>Z</b>	90.8 (N=12)	54.8 (N=12)	51.6 (N=11)
<b>AA</b>	118.1 (N=16)	54.0 (N=16)	53.1 (N=13)
<b>BB</b>	112.9 (N=27)	55.2 (N=27)	52.2 (N=25)
<b>CC</b>	114.6 (N=19)	53.6 (N=19)	51.6 (N=16)
<b>DD</b>	102.7 (N=13)	54.9 (N=13)	52.1 (N=11)
<b>EE</b>	112.6 (N=37)	55.7 (N=37)	51.5 (N=33)
<b>FF</b>	115.0 (N=24)	56.9 (N=24)	52.8 (N=24)
<b>GG</b>	111.5 (N=48)	55.2 (N=48)	51.5 (N=39)
<b>HH</b>	110.4 (N=39)	56.2 (N=39)	52.0 (N=26)
<b>II</b>	109.6 (N=69)	56.6 (N=69)	51.9 (N=68)
<b>JJ</b>	106.7 (N=48)	57.4 (N=48)	51.5 (N=41)
<b>INLET</b>	-	-	-
<b>Total</b>	<b>110.4 (N=376)</b>	<b>55.9 (N=376)</b>	<b>51.8 (N=328)</b>

<sup>1</sup> Zone YM = the Martin County portion of INBS Zone Y.

**Table 9.** Mean clutch size, clutch depth and incubation period of marked green turtle (*Chelonia mydas*) nests, summarized by Index Nesting Beach Survey (INBS) Zone, Hutchinson Island, Florida, 2005. A dash indicates that there were no marked nests in the specified INBS Zone.

INBS Zone	Clutch Size (eggs)	Clutch Depth (cm)	Incubation Period (days)
<b>YM<sup>1</sup></b>	122.8 (N=4)	77.9 (N=4)	51.0 (N=2)
<b>Z</b>	136.5 (N=2)	70.0 (N=2)	53.0 (N=2)
<b>AA</b>	116.0 (N=1)	75.5 (N=1)	54.0 (N=1)
<b>BB</b>	146.0 (N=1)	89.5 (N=1)	NA <sup>2</sup>
<b>CC</b>	123.0 (N=1)	72.0 (N=1)	49.0 (N=1)
<b>DD</b>	-	-	-
<b>EE</b>	-	-	-
<b>FF</b>	118.0 (N=2)	89.0 (N=2)	51.0 (N=2)
<b>GG</b>	111.5 (N=6)	75.2 (N=6)	56.2 (N=6)
<b>HH</b>	138.0 (N=1)	94.0 (N=1)	51.0 (N=1)
<b>II</b>	-	-	-
<b>JJ</b>	-	-	-
<b>INLET</b>	-	-	-
<b>Total</b>	<b>121.8 (N=18)</b>	<b>78.9 (N=18)</b>	<b>53.4 (N=15)</b>

<sup>1</sup> Zone YM = the Martin County portion of INBS Zone Y.

<sup>2</sup> NA = no data available because the only nest that was evaluated did not hatch.

**Table 10.** Mean clutch size, clutch depth and incubation period of marked leatherback turtle (*Dermochelys coriacea*) nests, summarized by Index Nesting Beach Survey (INBS) Zone, Hutchinson Island, Florida, 2005. A dash indicates that there were no marked nests in the specified INBS Zone. *Does not include relocated nests.*

INBS Zone	Clutch Size (eggs)	Clutch Depth (cm)	Incubation Period (days)
<b>YM<sup>1</sup></b>	86.3 (N=3)	73.3 (N=3)	66.8 (N=4)
<b>Z</b>	99.5 (N=2)	84.3 (N=2)	68.0 (N=2)
<b>AA</b>	54.0 (N=1)	78.5 (N=1)	68.0 (N=2)
<b>BB</b>	73.0 (N=2)	99.3 (N=2)	70.3 (N=3)
<b>CC</b>	83.0 (N=3)	65.8 (N=3)	68.7 (N=3)
<b>DD</b>	89.0 (N=2)	76.8 (N=2)	67.5 (N=2)
<b>EE</b>	81.0 (N=8)	80.1 (N=8)	66.6 (N=9)
<b>FF</b>	66.5 (N=2)	70.5 (N=2)	62.5 (N=2)
<b>GG</b>	-	-	-
<b>HH</b>	86.7 (N=3)	74.5 (N=3)	68.7 (N=3)
<b>II</b>	-	-	-
<b>JJ</b>	82.5 (N=2)	77.8 (N=2)	63.0 (N=2)
<b>INLET</b>	-	-	-
<b>Total</b>	<b>81.8 (N=28)</b>	<b>77.8 (N=28)</b>	<b>67.1 (N=32)</b>

<sup>1</sup> Zone YM = the Martin County portion of INBS Zone Y.

**Table 11.** Mean Hatching and Emerging Success of marked loggerhead turtle (*Caretta caretta*) nests, summarized by Index Nesting Beach Survey (INBS) Zone, Hutchinson Island, Florida, 2005. A dash indicates that there were no marked nests in the specified INBS Zone. *Does not include relocated nests.*

<b>INBS Zone</b>	<b>Hatching Success<sup>1</sup> Excluding Washed-out Nests</b>	<b>Hatching Success Including Washed-out Nests</b>	<b>Emerging Success<sup>2</sup> Excluding Washed-out Nests</b>	<b>Emerging Success Including Washed-out Nests</b>
<b>YM<sup>3</sup></b>	36.8% (N=24)	35.3% (N=25)	31.4% (N=24)	30.2% (N=25)
<b>Z</b>	46.0% (N=12)	29.1% (N=19)	41.2% (N=12)	26.0% (N=19)
<b>AA</b>	38.0% (N=16)	24.3% (N=25)	34.3% (N=16)	22.0% (N=25)
<b>BB</b>	56.8 % (N=27)	48.0% (N=32)	52.9% (N=27)	44.6% (N=32)
<b>CC</b>	54.0% (N=19)	39.4% (N=26)	50.8% (N=19)	37.1% (N=26)
<b>DD</b>	75.8% (N=13)	49.3% (N=20)	73.8% (N=13)	48.0% (N=20)
<b>EE</b>	49.9% (N=37)	43.9% (N=42)	45.7% (N=37)	40.2% (N=42)
<b>FF</b>	52.8% (N=24)	46.9% (N=27)	46.6% (N=24)	41.5% (N=27)
<b>GG</b>	46.7% (N=48)	37.3% (N=60)	43.0% (N=48)	34.4% (N=60)
<b>HH</b>	56.4% (N=39)	48.9 % (N=45)	53.7% (N=39)	46.5% (N=45)
<b>II</b>	68.9% (N=69)	55.3% (N=86)	63.4% (N=69)	50.8% (N=86)
<b>JJ</b>	71.5% (N=48)	53.6% (N=64)	68.8% (N=48)	51.6% (N=64)
<b>INLET</b>	-	-	-	-
<b>Total</b>	<b>56.7% (N=376)</b>	<b>45.3% (N=471)</b>	<b>52.6% (N=376)</b>	<b>42.0% (N=471)</b>

<sup>1</sup> Hatching Success is the percentage of eggs in the clutch that hatched.

<sup>2</sup> Emerging Success is the percentage of eggs in the clutch that produced hatchlings that successfully escaped from the nest.

<sup>3</sup> Zone YM = the Martin County portion of INBS Zone Y.



**Table 12.** Mean Hatching and Emerging Success of marked green turtle (*Chelonia mydas*) nests, summarized by Index Nesting Beach Survey (INBS) Zone, Hutchinson Island, Florida, 2005. A dash indicates that there were no marked nests in the specified INBS Zone.

<b>INBS Zone</b>	<b>Hatching Success<sup>1</sup> Excluding Washed-out Nests</b>	<b>Hatching Success Including Washed-out Nests</b>	<b>Emerging Success<sup>2</sup> Excluding Washed-out Nests</b>	<b>Emerging Success Including Washed-out Nests</b>
<b>YM<sup>3</sup></b>	71.4% (N=4)	57.2% (N=5)	66.6% (N=4)	53.2% (N=5)
<b>Z</b>	68.2% (N=2)	45.4% (N=3)	62.3% (N=2)	41.5% (N=3)
<b>AA</b>	95.7% (N=1)	95.7% (N=1)	95.7% (N=1)	95.7% (N=1)
<b>BB</b>	0.0% (N=1)	0.0% (N=1)	0.0% (N=1)	0.0% (N=1)
<b>CC</b>	49.6% (N=1)	49.6% (N=1)	48.0% (N=1)	48.0% (N=1)
<b>DD</b>	-	-	-	-
<b>EE</b>	NA <sup>4</sup>	0.0% (N=1)	NA	0.0% (N=1)
<b>FF</b>	74.4% (N=2)	74.4% (N=2)	71.4% (N=2)	71.4% (N=2)
<b>GG</b>	93.4% (N=6)	62.2% (N=9)	91.5% (N=6)	61.0% (N=9)
<b>HH</b>	58.0% (N=1)	58.0% (N=1)	39.1% (N=1)	39.1% (N=1)
<b>II</b>	NA	0.0% (N=2)	NA	0.0% (N=2)
<b>JJ</b>	-	-	-	-
<b>INLET</b>	-	-	-	-
<b>Total</b>	<b>74.1% (N=18)</b>	<b>51.3% (N=26)</b>	<b>70.3% (N=18)</b>	<b>48.7% (N=26)</b>

<sup>1</sup> Hatching Success is the percentage of eggs in the clutch that hatched.

<sup>2</sup> Emerging Success is the percentage of eggs in the clutch that produced hatchlings that successfully escaped from the nest.

<sup>3</sup> Zone YM = the Martin County portion of INBS Zone Y.

<sup>4</sup> NA = no data available since all marked nests were washed out.

**Table 13.** Mean Hatching and Emerging Success of marked leatherback turtle (*Dermochelys coriacea*) nests, summarized by Index Nesting Beach Survey (INBS) Zone, Hutchinson Island, Florida, 2005. A dash indicates that there were no marked nests in the specified INBS Zone. *Does not include relocated nests.*

<b>INBS Zone</b>	<b>Hatching Success<sup>1</sup> Excluding Washed-out Nests</b>	<b>Hatching Success Including Washed-out Nests</b>	<b>Emerging Success<sup>2</sup> Excluding Washed-out Nests</b>	<b>Emerging Success Including Washed-out Nests</b>
<b>YM<sup>3</sup></b>	57.5% (N=3)	24.6% (N=7)	48.6% (N=3)	20.8% (N=7)
<b>Z</b>	52.1% (N=2)	34.7% (N=3)	47.7% (N=2)	31.8% (N=3)
<b>AA</b>	48.1% (N=1)	12.0% (N=4)	1.90% (N= 1)	0.50% (N=4)
<b>BB</b>	65.9% (N=2)	65.9% (N=2)	65.9% (N=2)	65.9% (N=2)
<b>CC</b>	74.3% (N=3)	74.3% (N=3)	69.8% (N=3)	69.8% (N=3)
<b>DD</b>	59.0% (N=2)	29.5% (N=4)	54.0% (N=2)	27.0% (N=4)
<b>EE</b>	59.3% (N=8)	47.4% (N=10)	54.7% (N=8)	43.8% (N=10)
<b>FF</b>	56.3% (N=2)	56.3% (N=2)	46.4% (N=2)	46.4% (N=2)
<b>GG</b>	-	-	-	-
<b>HH</b>	60.0% (N=3)	60.0% (N=3)	54.4% (N=3)	54.4% (N=3)
<b>II</b>	-	-	-	-
<b>JJ</b>	44.4% (N=2)	44.4% (N=2)	37.3% (N=2)	37.3% (N=2)
<b>INLET</b>	-	-	-	-
<b>Total</b>	<b>59.0% (N=28)</b>	<b>41.3% (N=40)</b>	<b>52.2% (N=28)</b>	<b>36.5% (N=40)</b>

<sup>1</sup> Hatching Success is the percentage of eggs in the clutch that hatched.

<sup>2</sup> Emerging Success is the percentage of eggs in the clutch that produced hatchlings that successfully escaped from the nest.

<sup>3</sup> Zone YM = the Martin County portion of INBS Zone Y.